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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/062,463	02/05/2002	Kazuyoshi Amami	56937-045	4920

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Washington, DC 20005-3096

EXAMINER

ESTRADA, MICHELLE

ART UNIT	PAPER NUMBER
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2823

DATE MAILED: 02/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/062,463

Applicant(s)

AMAMI ET AL.

Examiner

Michelle Estrada

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/482,103.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Drawings***

OK Figure 5 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

OK The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1 and 7, line 6, respectively, the use of "not being" is a negative limitation to the claims, they claims must be positively recited. Correction is required.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Ono et al. (6,103,551) and Cobbley et al. (6,329,832).

Ono et al. disclose a connecting step of flip-chip mounting a semiconductor device (6) onto a substrate (9); a bonding step of bonding a region of said semiconductor device to a region of said substrate by means of an adhesive, each of said regions not being involved in electrical connection; and sealing said semiconductor device and said substrate by means of a sealing resin (2) (Col. 6, lines 1-25).

Ono et al. do not disclose a testing step of performing a test of electrical properties on said semiconductor device and said substrate that are connected to each other; and separating said semiconductor device from said substrate after heating a bonding place of said adhesive up to a temperature higher than a glass transition point or a melting point of said adhesive if it is determined that said electrical properties are poor in said testing step, and sealing said semiconductor device and said substrate by means of a resin if it is determined that said electrical properties are good in said testing step.

Cobbley et al. disclose a testing step of performing a test of electrical properties on said semiconductor device and said substrate that are connected to each other (Col. 3, lines 1-3); and separating said semiconductor device from said substrate (Col. 3, lines 10-20) after heating a bonding place of said adhesive up to a temperature higher than a glass transition point or a melting point of said adhesive if it is determined that said electrical properties are poor in said testing step (Col. 6, lines 54-58), and sealing said semiconductor device and said substrate by means of a resin if it is determined that said electrical properties are good in said testing step (Col. 3, lines 32-34 and Col. 5, lines 34-48).

It would have been within the scope of one of ordinary skill in the art to combine the teachings of Ono et al. and Cobbley et al. to enable formation of the semiconductor unit.

Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Ono et al. and Cobbley et al. as applied to claim 1 above, and further in view of Tsukahara (6,051,093).

The combination of Ono et al. and Cobbley et al. does not disclose wherein the electrically conductive adhesive comprises a thermoplastic; wherein said adhesive comprises a thermosetting resin; and wherein said adhesive is cured at a temperature lower than said glass transition point of said adhesive in said bonding step.

Tsukahara discloses bonding a circuit element (10) to a circuit board (4) by an adhesive sheet (21) of thermosetting resin or a thermoplastic resin (Abstract and Col. 8,

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lines 40-45); and wherein said adhesive is cured at a temperature lower than said glass transition point of said adhesive in said bonding step (Col. 5, lines 43-47).

It would have been within the scope of one of ordinary skill in the art to combine the teachings of Ono et al., Cobbley et al. and Tsukahara to enable formation of the adhesive material.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Ono et al. and Cobbley et al. as applied to claim 1 above, and further in view of Kohara et al. (4,654,966).

The combination of Ono et al. and Cobbley et al. does not disclose wherein said adhesive used in said bonding step comprises a low melting point metal.

Kohara et al. disclose that a low melting point metal is a suitable material for adhesive material (11); bonding flip-chips (6) mounted on the module base board (7) and metallic plates (12) (Col. 6, lines 24-30).

It would have been within the scope of one of ordinary skill in the art to combine the teachings of Ono et al., Cobbley et al. and Kohara et al. to enable formation of the adhesive layer.

***Allowable Subject Matter***

Claim 6 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.


Claim 7 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.


Claims 8-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michelle Estrada whose telephone number is (703) 308-0729. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 703-306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

  
George Fourson  
Primary Examiner  
Art Unit 2823

  
MEstrada  
February 21, 2003